EPA - General Parameters
Analytical Results Report

Laboratory: General Parameters

Technical Directive: EPAGP256 rev.1

Analyst: Kristie Hargrove

Method: RSKSOP-330 Rev. 0

Analytes	NPDOC			DIC		
Codes	7440-44-0-NPDOC			7440-44-0-DIC		
Methods	RSKSOP-330 Rev. 0			RSKSOP-330 Rev. 0		
Unit	mg/L			mg/L		
MDL	0.067			0.017		
QL	0.500			0.500		

QC Sample ID	Additional ID	Date Prepared	Date Analyzed	Data	True Value	% REC.	Data	True Value	% REC.
MB	METHOD BLANK	5/5/2011	5/5/2011	BQL (0.069)	-	-	-	-	-
MB	METHOD BLANK	5/5/23011	5/6/2011	ND	-	-	-	-	-
MB	METHOD BLANK	5/9/2011	5/9/2011	-	-	-	BQL (0.023)	-	-
MB	METHOD BLANK	5/9/2011	5/9/2011	-	-	-	BQL (0.019)	-	-
MB	METHOD BLANK	5/9/2011	5/10/2011	-	-	-	BQL (0.029)	-	-
SS	ERA 49	3/23/2011	5/5/2011	3.87	3.95	98.0	-	-	-
SS	ERA 49	3/23/2011	5/6/2011	3.91	3.95	99.0	-	-	-
SS	MIXED STANDARD 20mg/LIC/2mg/LOC	5/5/2011	5/9/2011	-	-	-	19.4	20.0	97.0
SS	MIXED STANDARD 20mg/LIC/2mg/LOC	5/5/2011	5/9/2011	-	-	-	19.4	20.0	97.0
SS	MIXED STANDARD 20mg/LIC/2mg/LOC	5/5/2011	5/10/2011	-	-	-	18.8	20.0	94.0
CCC	CHECK STANDARD	5/5/2011	5/5/2011	1.07	1.00	107	-	-	-
CCC	CHECK STANDARD	5/5/2011	5/5/2011	0.506	0.500	101	-	-	-
CCC	CHECK STANDARD	5/5/2011	5/5/2011	1.06	1.00	106	-	-	-
CCC	CHECK STANDARD	5/5/2011	5/5/2011	4.90	5.00	98.0	-	-	-
CCC	CHECK STANDARD	5/5/2011	5/5/2011	4.92	5.00	98.4	-	-	-
CCC	CHECK STANDARD	5/5/2011	5/5/2011	9.95	10.0	99.5	-	-	-
CCC	CHECK STANDARD	5/5/2011	5/6/2011	10.0	10.0	100	-	-	-
CCC	CHECK STANDARD	5/9/2011	5/9/2011	-	-	-	0.549	0.500	110
CCC	CHECK STANDARD	5/9/2011	5/9/2011	-	-	-	1.06	1.00	106
CCC	CHECK STANDARD	5/9/2011	5/9/2011	-	-	-	1.04	1.00	104
CCC	CHECK STANDARD	5/9/2011	5/9/2011	-	-	-	4.87	5.00	97.4
CCC	CHECK STANDARD	5/9/2011	5/9/2011	-	-	-	9.88	10.0	98.8
CCC	CHECK STANDARD	5/9/2011	5/9/2011	-	-	-	24.6	25.0	98.4
CCC	CHECK STANDARD	5/9/2011	5/9/2011	-	-	-	49.8	50.0	99.6
CCC	CHECK STANDARD	5/9/2011	5/9/2011	-	-	-	101	100	101
CCC	CHECK STANDARD	5/9/2011	5/10/2011	-	-	-	23.4	25.0	93.6
CCC	CHECK STANDARD	5/9/2011	5/10/2011	-	-	-	49.0	50.0	98.0
CS	CAFFEINE STANDARD	3/17/2011	3/17/2011	4.19	4.00	105	-	-	-

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Technical Directive:	**EPAGP256 rev.1**
Analyst:	**Kristie Hargrove**
Method:	**RSKSOP-330 Rev. 0**

Analytes	**NPDOC**	**DIC**
Codes	7440-44-0-NPDOC	7440-44-0-DIC
Methods	RSKSOP-330 Rev. 0	RSKSOP-330 Rev. 0
Unit	mg/L	mg/L
MDL	0.067	0.017
QL	0.500	0.500

QC Sample ID	Additional ID	Date Prepared	Date Analyzed	Data	True Value	% REC.	Data	True Value	% REC.
CS	CAFFEINE STANDARD	3/21/2011	3/21/2011	3.99	4.00	99.8	-	-	-
MS	PGDW32-0411 SPIKE	5/5/2011	5/5/2011	5.32	BQL (0.412) (4.98)	98.6	-	-	-
MS	PGDW32d-0411 SPIKE	5/10/2011	5/10/2011	-	-	-	12.8	7.73 (4.98)	102

Comments: The data quality objective for ERA #49 is 83.3-117% recovery. The data quality objective for the accuracy of continuing calibration check standards and mixed standards is 90-110% recovery. The data quality objective for the recovery of matrix spike samples is 80-120% recovery. These objectives were met for the standards and spikes during this analysis. The matrix spikes for NPDOC and DIC were prepared by adding 100 µL of a 1000 mg/L standard into 20 mL of sample yielding a spike concentration of 4.98 mg/L. The matrix spike recoveries were calculated according to the equation: **%Recovery** = 100 * (Spiked Sample Concentration (**Data**) - Native Sample Concentration) / Spike Concentration. The samples were filtered in the field by the originator. Therefore no filtered blanks were analyzed.

1. **MB** - Method Blank. **CCC** - Continuing Calibration Check. A calibration standard analyzed within the batch of samples. **LCS** - Laboratory Control Spike. A laboratory blank spiked with analytes at known concentrations. **MS** - Matrix Spike. A field sample spiked with known concentrations of analytes. The field sample id is identified. **SS** - Second Source. Samples obtained from ERA and analyzed as second sources are identified by their designated names.The mixed standard analyzed as a second source is 20 mg/L inorganic carbon and 2 mg/L organic carbon. **CS** - Caffeine Standard. A caffeine standard analyzed as an evaluation of instrument performance. **DUP** - Field sample duplicate analysis. A sample selected by the lab analyst to analyze as a duplicate. It is reported in the sample result section. **% REC** - Percent Recovery. Calculated as the percentage of the results to the true values. It equals to % accuracy for CCC. The **True Value** column for matrix spikes lists the unspiked native sample concentraiton along with the spike concentration in parentheses.

MEMORANDUM (LABORATORY DATA REPORT)

EPA - General Parameters

		In reply refer to:	11-KH39
To:	Rick Wilkin	**From:**	Kristie Hargrove
		Lab:	General Parameters
Thru:	Mark White Lynda Callaway	**Date:**	5/17/2011
Technical Directive No.:	EPAGP256 rev.1	**Originator:**	Rick Wilkin
Task No.:	23993	**Copies:**	Rick Wilkin Steve Vandegrift Lynda Callaway Kristie Hargrove

Project/Sample Site:	Pavillion Groundwater		
Date Collected:	4/14-4/21/2011	**Sample Set No.:**	6030, 6032
Date Received:	4/21 & 4/22/2011	**Sample Matrix:**	Water
Date Analyzed:	5/5-5/10/2011	**Analysis Type:**	DIC, NPDOC
No. Samples Analyzed:	13, 6	**Sample Preparation:**	See comments below

Method(s) Used :

RSKSOP-330 rev. 0 Determination of Various Fractions of Carbon in Aqueous Samples using the Shimadzu TOC-VCPH Analyzer.

Comments:

The samples were analyzed for DIC and NPDOC using the Shimadzu TOC-VCPH Analyzer. Quality control measures performed along with your samples included analysis of method blanks, sample duplicates, calibration check standards, matrix spikes, a mixed standard, a caffeine standard, and a known ERA sample. The samples were filtered in the field by the originator. Therefore no filtered blanks were analyzed. A MDL study was performed on the Shimadzu TOC-VCPH on 5/9/2011 for NPOC High Sensitivity range 0-10mg/L. The current MDL is 0.067 mg/L. A MDL study was performed on the Shimadzu TOC-VCPH on 4/27/2011 for TIC range 0-100mg/L. The current MDL is 0.017 mg/L. All reagents, standards, and dilutions were prepared using Nanopure water from lab 123.

EPA - General Parameters

Analytical Results Report

Laboratory: General Parameters

Technical Directive: EPAGP256 rev.1

Analyst: Kristie Hargrove

Methods: RSKSOP-330 Rev. 0

Analytes	NPDOC		DIC	
Codes	7440-44-0-NPDOC		7440-44-0-DIC	
Methods	RSKSOP-330 Rev. 0		RSKSOP-330 Rev. 0	
Unit	mg/L		mg/L	
MDL	*0.067		*0.017	
QL	*0.500		*0.500	

Field Sample ID	Lab Sample ID	Date Collected	Date Analyzed	Data	DF	Data	DF
PGDW20-0411	6030-1	4/18/2011	5/5-5/10/2011	0.683	1	14.7	1
PGDW26-0411	6030-2	4/18/2011	5/5-5/10/2011	2.05	1	88.7	1
PGDW30-0411	6030-3	4/18/2011	5/5-5/10/2011	0.572	1	20.2	1
PGDW32-0411	6030-4	4/18/2011	5/5-5/10/2011	BQL (0.412)	1	7.70	1
PGDW32d-0411	6030-5	4/18/2011	5/5-5/10/2011	BQL (0.373)	1	7.73	1
EPAMW02-0411	6030-6	4/19/2011	5/5-5/10/2011	19.7	4	1.40	1
EPAMW02d-0411	6030-7	4/19/2011	5/5-5/10/2011	19.7	4	1.39	1
TEMP BLANK	6030-8	4/14/2011	-	**	-	**	-
TRIP BLANK	6030-9	4/14/2011	5/5-5/10/2011	BQL (0.286)	1	BQL (0.091)	1
EPAMW02-0411	6030-10	4/19/2011	-	**	-	**	-
PGDW05-0411	6030-11	4/19/2011	5/5-5/10/2011	0.613	1	17.8	1
PGDW05-0411	6030-11 LAB DUP	4/19/2011	5/5-5/10/2011	0.640 (RPD=4.31)	1	17.8 (RPD=0)	1
PGDW45-0411	6030-12	4/19/2011	5/5-5/10/2011	2.78	1	99.0	4
EPAMW01-0411	6030-13	4/20/2011	5/5-5/10/2011	9.43	1	12.7	1
PGDW41-0411	6030-14	4/20/2011	5/5-5/10/2011	9.73	1	89.1	1
FIELD BLANK	6030-15	4/18/2011	5/5-5/10/2011	BQL (0.244)	1	BQL (0.287)	1
PGDW14-0411	6032-1	4/20/2011	5/5-5/10/2011	1.11	1	37.4	1
PGDW49-0411	6032-2	4/20/2011	5/5-5/10/2011	6.43	1	72.2	1
PGDW23-0411	6032-3	4/21/2011	5/5-5/10/2011	0.597	1	10.9	1
PGDW44-0411	6032-4	4/21/2011	5/5-5/10/2011	1.14	1	16.9	1
PGDW44-0411	6032-4 LAB DUP	4/21/2011	5/5-5/10/2011	1.14 (RPD=0)	1	16.9 (RPD=0)	1
FIELD BLANK	6032-5	4/21/2011	5/5-5/10/2011	BQL (0.165)	1	BQL (0.197)	1

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Analyst: Kristie Hargrove

Methods: RSKSOP-330 Rev. 0

Analytes	NPDOC		DIC	
Codes	7440-44-0-NPDOC		7440-44-0-DIC	
Methods	RSKSOP-330 Rev. 0		RSKSOP-330 Rev. 0	
Unit	mg/L		mg/L	
MDL	*0.067		*0.017	
QL	*0.500		*0.500	

Field Sample ID	Lab Sample ID	Date Collected	Date Analyzed	Data	DF	Data	DF
EQUIPMENT BLANK	6032-6	4/21/2011	5/5-5/10/2011	BQL (0.280)	1	BQL (0.177)	1
TEMP BLANK	6032-7	4/14/2011	-	**	-	**	-

Comments: The data quality objective for the precision of sample duplicates is a relative percent difference of <10. The precision objective was met for the duplicate samples in this sample set. A MDL study was performed on the Shimadzu TOC-VCPH on 5/9/2011 for NPOC High Sensitivity range 0-10mg/L. The current MDL is 0.067 mg/L. A MDL study was performed on the Shimadzu TOC-VCPH on 4/27/2011 for TIC range 0-100mg/L. The current MDL is 0.017 mg/L. All reagents, standards, and dilutions were prepared using Nanopure water from lab 123.

*The MDL and QL should be raised by the same factor as the dilution factor in the samples that were diluted.

** No sample received

1. If the parameter was detected above the quantitation limit (QL), the numeric result is reported; BQL denotes that the parameter was not detected at or above the quantitation limit; BQL ( ) denotes that the parameter was detected above the method detection limit (MDL) but below QL and the estimated numeric result is reported in parenthesis; ND denotes that the parameter was not detected at all. All the results are corrected with dilution factors (DF), if applicable. NSF - denotes there was an insufficient amount of sample to analyze.

2. " -" denotes that the information is not available or the analyte is not analyzed.